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The ABM Treaty and Theater Missile Defense: Proposed Changes and Potential Implications

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THE ABM TREATY AND THEATER MISSILE DEFENSE: PROPOSED CHANGES AND POTENTIAL IMPLICATIONS

SUMMARY

The Clinton Administration recently decided to establish a formal understanding with Russia and other states of the former Soviet Union on the demarcation between theater missile defenses (TMD) and strategic ballistic missile defenses limited by the 1972 ABM (Anti-ballistic Missile) Treaty. Although the proposed changes to the Treaty apparently have been received warmly by Russia and other former Soviet states, some supporters of the ABM Treaty in the United States have voiced strong concerns and opposition.

The proposed changes come at a time of increasing concern over the global proliferation of ballistic missiles and when advanced U.S. TMD programs approach their testing phase. Continued development of these programs depends on the outcome of current negotiations in Geneva.

The Administration seeks to ensure that TMD systems can be deployed against 3,000 kilometer range missile threats. Currently, however, only China and Saudi Arabia possess these long-range theater systems in the developing world. Almost all of the tactical and theater-range ballistic missiles today travel less than about 900 kilometers. The future, however, especially concerning North Korean missile developments, is unclear.

Because Congress has strongly supported the ABM Treaty as well as development of TMD programs, the current proposed ABM Treaty demarcation could focus congressional attention on the rationale and need for advanced TMD programs. Some in Congress have also begun to assert the need for a formal Senate role in any potential ABM treaty change. Although the Administration indicates it will consult closely with Congress on the form of any final agreement, it is not sure that Congress will be asked to play a formal role.

Advanced TMD systems tested at the proposed ABM Treaty demarcation will have some inherent capabilities beyond the demarcation. This is a potential problem with the Treaty unless it is somehow resolved. Among the Treaty partners, this capability will probably have little real meaning. Nonetheless, the actual and potential capabilities of advanced TMD systems will introduce a new variable into the security calculations of other nuclear powers such as Britain, France, and China, as well as other likely nuclear countries--Israel, India, Pakistan, and North Korea. Some or all of these countries could decide that they will not or cannot pursue a variety of military and technological options available to them to counter the effects of advanced TMD systems. On the other hand, some or all of these countries might further proliferate their nuclear systems, continue nuclear testing programs, or embark on new regional arms races. The likely response of any of these countries cannot now be predicted.

As a result, a number of U.S. arms control objectives could be jeopardized. These include implementation of strategic arms control agreements, completion of a comprehensive nuclear test ban, and extension of the Non-Proliferation Treaty.

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BACKGROUND

The 1972 U.S.-Soviet ABM (Anti-Ballistic Missile) Treaty codified a belief that limits on defensive systems capable of intercepting strategic ballistic missiles (SBMs) would help substantially in curbing strategic nuclear arms competition and in decreasing the risk of war involving nuclear weapons (see ABM Treaty Preamble). Although a precise definition of an SBM was not included, the parties generally agreed that for purposes of the ABM Treaty, SBMs were missiles captured by other strategic nuclear arms control agreements. Shorter range tactical and theater ballistic missiles (TBMs), whose ranges vary considerably from 30 to 3,000 kilometers, were not captured by the ABM Treaty or U.S.-Soviet strategic nuclear arms control agreements.

Until recently, the lack of an agreed-upon dividing line between TBMs and SBMs in the ABM Treaty was not a critical issue. Now, however, with the experience of the Iraqi missile attacks in Desert Storm and still growing concern over the global proliferation of TBMs, the development of advanced U.S. theater missile defense (TMD) systems to counter TBMs is viewed increasingly as a national security priority.[1] But, for several years, the absence of a clear dividing line in the Treaty between theater and strategic ballistic missiles has caused some concern in the arms control community, especially as advanced U.S. TMD programs move closer to actual testing and deployment.

In late 1993, after a lengthy review, the Clinton Administration decided to establish a formal understanding on the distinction between TMD systems not limited by the ABM Treaty and strategic ballistic missile defenses (BMD) that are limited. The proposed changes were delivered to Russia and other former Soviet states at a meeting of the Standing Consultative Commission (SCC), which was established by the ABM Treaty and is charged with promoting the objectives and the implementation of the Treaty (Article XIII). Negotiations are well underway. There is widespread expectation that agreement soon will be forthcoming.

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[1] TMD systems are generally understood to include interceptor missiles capable of destroying attacking TBMs. See U.S. Library of Congress. Congressional Research Service. Theater Missile Defense Policy, Missions, and Programs, by Steven A. Hildreth. CRS Report No. 93-585F, June 10, 1993; and U.S. Library of Congress. Congressional Research Service. Theater Missile Defense: Issues for the 103rd Congress, by Steven A. Hildreth. CRS Issue Brief 93064, updated regularly.

The need to establish a formal understanding with Russia on permitted TMD testing and deployment is acute because of the status of the most advanced TMD program called THAAD (Theater High-Altitude Area Defense). The THAAD program enters its testing phase later this year. The challenge in establishing an understanding involves balancing Russian concerns over the potential ABM capabilities of advanced TMD systems, the widespread U.S. political consensus to develop and deploy effective TMD systems, strong congressional and Administration support for the ABM Treaty, and Senate interest in playing a formal role in the outcome. Most analysts and decisionmakers believe an ABM Treaty solution is necessary and possible. Others believe the particular solution being considered is too permissive, incomplete, or threatens the Treaty. A few believe that the best solution simply is to abandon the Treaty altogether and move forward aggressively with widespread BMD deployments.

The proposed changes raise a number of questions. These questions involve congressional activism in pursuing advanced TMD programs, prerogatives in arms control decisionmaking, and long-standing support for preserving the ABM Treaty. The proposed changes may affect British, French, and PRC nuclear forces, U.S. and regional relationships around the globe, and future U.S. arms control objectives. This report addresses these issues.

THE ABM TREATY, SDI, AND TMD

The ABM Treaty between the United States and the Soviet Union, signed and ratified in 1972, limits the development, testing, and deployment of defensive systems capable of intercepting strategic ballistic missiles. Its central purpose is to prohibit deployment of a nationwide ABM defense. With a 1974 Protocol, the Treaty permits each party to deploy one ABM system to protect either its national capital or an ICBM (intercontinental ballistic missile) field. This ABM system is limited to no more than 100 ground-based interceptor missiles and 100 launchers. There are also restrictions on the number and characteristics of associated radars. The Soviet Union chose to deploy its system around Moscow, while the United States built its single site to defend an ICBM field near the Canadian border northwest of Grand Forks, North Dakota. The U.S. site became operational in 1974, but was rendered inactive in mid-1975 primarily for budgetary reasons. Neither side may deploy ABM systems for a defense of its country nor provide a base for such a defense. Neither may deploy ABM systems for defense of an individual region, except for the single permitted ABM site.

Weapon systems that are not capable of intercepting strategic ballistic missiles are not limited in any way by the ABM Treaty.[2] Although this seems

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[2] During Senate debate over the ABM Treaty, the Director of Pentagon Defense, Research, and Engineering, John Foster, testified as to the appropriate upper threshold for non-ABM testing and deployment. This threshold established a maximum peak velocity of 2 kilometers/second and a maximum

(continued...)

straightforward, it is not. The distinctions between strategic ballistic missiles (SBMs) and theater ballistic missiles (TBMs) have been blurred since the Treaty's inception for two key reasons.

- The ABM Treaty does not define a strategic ballistic missile. The 1972 SALT I (Strategic Arms Limitation Talks) and 1979 SALT II agreements defined a strategic ballistic missile as an ICBM with a range greater than 5,500 kilometers. Also included in SALT, however, were ballistic missiles deployed on SALT-accountable Soviet nuclear-powered submarines. Some of these submarines deployed the SS-N-5 SLBM (submarine-launched ballistic missile), which only had a range of about 1,400 kilometers. Further complicating the definition of a strategic ballistic missile was the categorization of 1960s-era Soviet medium- and intermediate-range ballistic missiles (MRBMs and IRBMs, such as the SS-4 and SS-5, with ranges of about 2,000 and 4,100 kilometers, respectively). Although not SALT-accountable, these missiles were considered strategic by the SCC for purposes of the ABM Treaty in the 1970s because of the manner in which they were tested in conjunction with Soviet ABM radars.[3]

- Since the ABM Treaty was signed, some TBMs have had greater ranges than many U.S. and Soviet MRBMs/IRBMs and short-range SBMs. The Chinese deployed the 3,000 kilometer nuclear-armed CSS-2 missile in 1971. This missile remains operational today in China. Some nonnuclear CSS-2 missiles were exported to Saudi Arabia in the late 1980s. Many do not consider the Saudi missiles operational, however. The CSS-2 is not constrained by any treaty. Because it is considered the longest range TBM, it has come to represent the dividing line between TBMs and SBMs.

Today, however, the distinctions between theater and strategic ballistic missiles are becoming clearer. This point can be made by plotting the peak velocity of a ballistic missile, which increases as the range of the missile increases. Figure 1 shows the range of peak velocities of TBMs and SBMs. Since the ABM Treaty was signed, the range of peak velocities for tactical and theater ballistic missiles has remained constant. U.S. and Soviet MRBMs and IRBMs were eliminated by the 1988 INF (Intermediate-range Nuclear Forces) Treaty. And with Russian START reductions and retirements looming, their shortest range SLBMs, which had peak velocities less than the CSS-2's and U.S.-

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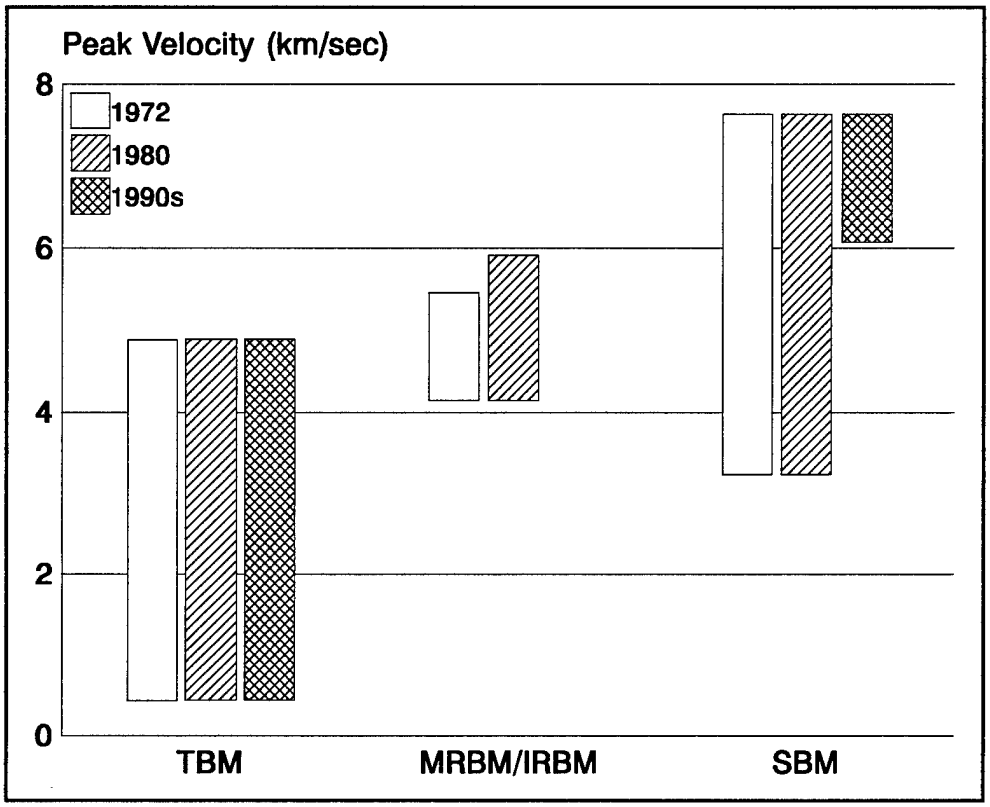
[2](...continued)
intercept altitude of 40 kilometers. The threshold became known as the "Foster Box," and is internal Pentagon guidance for determining whether U.S. military systems under development require Pentagon compliance review. Although the Soviet Union was aware of this guidance, the Foster Box was never a subject for formal discussion or review at meetings of the SCC.

[3] Telephone conversation with Sidney Graybeal, former Commissioner of the SCC. January 1994.

Soviet MRBMs and IRBMs, are being eliminated. It is important to note that for the first time there soon will be a clear gap between deployed TBMs and SBMs.

Figure 1
Range of Peak Velocities of TBMs, MRBMs/IRBMs, & SBMs (1972-1990s)



Beginning in the early 1980s, a congressional consensus emerged for fielding effective missile defenses as soon as possible against tactical ballistic missiles.[4] The result was a two-level approach that supported a near- and long-term solution. The near-term solution was to upgrade the Army's Patriot air-defense system to give it limited tactical missile defense capabilities. This became known as the Patriot PAC-2 system (Patriot Antitactical Missile Capability). The longer term solution promoted development of advanced TMD systems in the Strategic Defense Initiative (SDI). During this time, when the SDI budget grew to about $3.5 billion per year, an average of $200-$300 million was allocated for TMD. By the late 1980s, the Pentagon TMD budget rose above $500 million per year. In Congress, criticism of the Pentagon's lack of attention toward TMD began to wane.

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[4] See, U.S. Library of Congress. The Patriot Air Defense System and the Search for an Antitactical Ballistic Missile Defense. CRS Report 91-456F, by Steven A. Hildreth, June 18, 1991, and U.S. Library of Congress. Theater Ballistic Missile Defense Policy, Missions, and Programs: Current Status. CRS Report 93-585F, by Steven A. Hildreth, June 10, 1993.

After the 1991 war against Iraq the long-term Pentagon budget for TMD rose dramatically. With these increases, congressional scrutiny focussed on the multiplicity of TMD programs among the military services and the rationale to develop large-area TMD. When the Clinton Administration entered office, it shifted the Nation's missile defense priorities from national missile defense (NMD) to TMD. For comparison, the NMD program for FY 1995-1999 is planned at about $3 billion, while TMD programs are to receive $18 billion. The current FY 1995 budget request for TMD is about $2.1 billion; the total Ballistic Missile Defense Organization (BMDO, formerly the SDI Organization) budget is about $3.2 billion.

As the TMD effort evolved, some analysts and policymakers began to ask whether advanced TMD systems would be compliant with the ABM Treaty. Many of the most important aspects of this debate are classified. Therefore, fully informed debate is limited to a relatively small number of officials in the Executive Branch, some Members of Congress, and defense contractors. Recently, the Administration submitted a required report to Congress on the arms control compliance of the most mature, advanced TMD program, THAAD.[5] The report's discussion of whether THAAD specifically is treaty-compliant is classified. Recently, however, John Holum, Director of ACDA (Arms Control and Disarmament Agency) told Congress that the ABM Treaty would have to be changed in order to develop THAAD.[6]

WHY SEEK CHANGES TO THE ABM TREATY NOW?

Why do many people believe it is now necessary to change the ABM Treaty? Several key reasons discussed below include the need for treaty compliance certification of advanced U.S. TMD programs, concern over global proliferation of TBMs, and congressional and Russian concern over resolving the issue of permitted TMD testing and deployment.

An important reason is that a decision has to be made regarding the arms control compliance of a major TMD program. The THAAD program is scheduled to begin missile and system testing in 1994. This fall, THAAD missiles will be launched in the first of many tests. In early 1995, THAAD missiles are scheduled to begin intercepting various targets from fixed and mobile platforms. For several years, there has been uncertainty over THAAD's compliance with the ABM Treaty. Congress will be asked this year to fund these tests in the FY 1995 defense bill.

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[5] Office of the Secretary of Defense. Report to the Congress. Theater Missiles Defense Systems ABM Treaty Compliance Report on the Theater High-Altitude Area Defense (THAAD) Interceptor & Theater Missile Defense Ground-Based Radar (TMD-GBR). January 12, 1994. (S)

[6] Sen. Paul Simon asked: "if we do not modify the [ABM] treaty, we are not able to develop this weapon system [THAAD] by the treaty. Is that correct?" John Holum replied: "That's correct." Hearings on ABM Treaty and TMD. Senate Foreign Relations Committee. March 10, 1994.

Related to this is widespread interest in developing effective TMD systems to counter the proliferation of TBM threats around the world. Many analysts and supporters of the ABM Treaty conclude that the Treaty should not become an obstacle to deploying such defenses. Some have advocated that the Treaty must be clarified if it is to remain a "viable arms control agreement consistent with U.S. and Russian national security requirements.[7]

Clarification of permitted TMD systems and ABM systems limited for strategic ballistic missiles has also been a Soviet concern. In fact, according to the Acting Commissioner of the SCC, the Soviets proposed establishing a 3 kilometer/second and 90 kilometer maximum altitude threshold for TMD systems.[8] More recently, the Russians apparently insisted on resolving this issue quickly and called upon the United States to initiate a dialogue given that the THAAD was soon to begin testing.[9]

Congress also advocated clarification of the Treaty on this matter. A few weeks before the White House made its decision to modify the ABM Treaty, Congress passed the FY 1994 Defense Authorization Act. The Act includes the following language:[10]

- "Congress urges the President to pursue immediate discussions with Russia and other successor states of the former Soviet Union, as appropriate, on the feasibility of, and mutual interest in, amendments to the ABM Treaty to permit -- clarification of the distinctions for the purposes of the ABM Treaty between theater missile defenses and anti-ballistic missile defenses, including interceptors, radars, and other sensors." [P.L. 103-160, Section 232(c)(1)]

- "The ABM Treaty was not intended to, and does not, apply to or limit research, development, testing, or deployment of missile defense systems, system upgrades, or system components that are *designed to*

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[7] For example, see Graybeal, Sidney N. and McFate, Patricia A. The ABM Treaty and Ballistic Missile Defense: Can the Circle be Squared? A PSIS (Program on Science and International Security) Occasional Paper, Number 93-26S. 1993. Published by the American Association for the Advancement of Science. Washington, DC.

[8] Dr. Stanley Riveles. The ABM Treaty and the U.S. TMD Program. Meeting of the Arms Policies Working Group. Center for Strategic and International Studies. January 14, 1993.

[9] Interview with congressional staff. December 1993.

[10] National Defense Authorization Act for Fiscal Year 1994. Public Law 103-160. 107 STAT. 1547. Nov. 30, 1993.

counter modern theater ballistic missiles,[11] regardless of the capabilities of such missiles, unless those systems, system upgrades, or system components are tested against or have *demonstrated capabilities to counter modern strategic ballistic missiles* (italics added)." [P.L. 103-160, Section 234(a)(7)]

- "It is a national security priority of the United States to develop and deploy highly effective theater missile defense systems capable of countering the existing and expanding threats posed by modern theater ballistic missiles as soon as is technically possible." [P.L. 103-160, Section 234(a)(8)]

- "It is essential that the Secretary of Defense immediately undertake and complete a review for compliance with the ABM Treaty of proposed theater missile defense systems, system upgrades, and system components so as to not delay the development and deployment of such highly effective theater missile defense systems." [sec. 234(a)(9)]

This legislation served to provide political support within the Executive Branch to those who advocated Treaty changes to permit advanced TMD testing and deployment.[12]

DETAILS OF THE PROPOSED TREATY CHANGES

The Administration's proposed changes to the ABM Treaty were delivered to Russia and other former Soviet states at a meeting of the SCC in Geneva in December 1993. There are several elements in the U.S. proposal. Note that in many respects they mirror the concerns and objectives outlined by Congress in the FY 1994 Defense Authorization Act.

- The United States withdrew previous proposals offered by the Bush Administration to amend the ABM Treaty. One proposal sought to allow 5-6 ABM sites or hundreds of interceptors to be deployed. Another sought to allow space-based sensors to perform direct ABM battle management functions or otherwise substitute for ABM radars.

- The United States will negotiate an Agreed Statement to the ABM Treaty that will permit testing and deployment of advanced TMD systems capable of intercepting a medium-range Chinese-built CSS-2 missile. For purposes of treaty compliance, any missile defense system not tested against a ballistic missile target with a maximum speed greater than 5 kilometers per second will be considered a TMD system

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[11] The Act adds that some missiles, "such as the Chinese-made CSS-2 have capabilities equal to or greater than the capabilities of missiles which were determined to be strategic missiles more than 20 years ago under the SALT I Interim Agreement of 1972." [P.L. 103-160, Section 234(a)(6)]

[12] Interviews. November-December 1993.

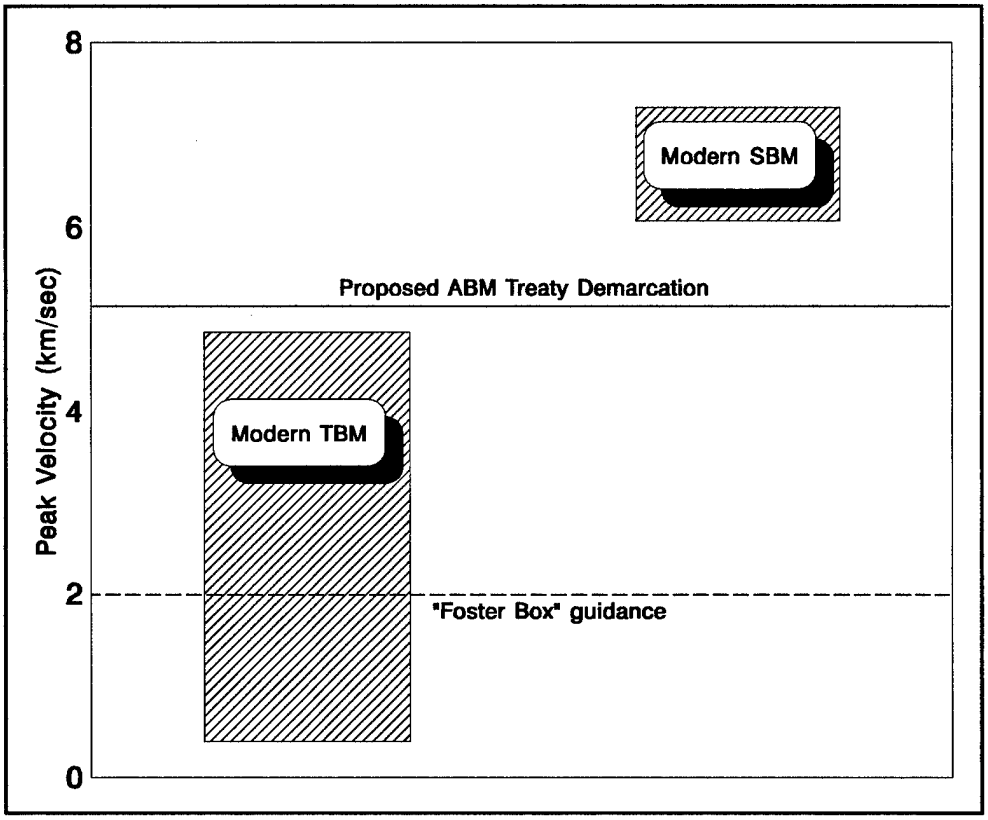
and will not be constrained by the ABM Treaty. In the current ABM Treaty negotiations, the proposed 5 kilometer per second threshold is referred to as the demarcation between TMD and strategic ballistic missile defenses.

- The United States will seek to change Article 2 of the ABM Treaty, which reads that neither party will "give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, *capabilities* to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode," to read instead "*demonstrated capabilities* to counter strategic ballistic missiles . . . (italics added)."

- The United States will negotiate an Agreed Statement to expand the Treaty's members, accepting as treaty parties any of the former Soviet states that claim succession rights who want to be party to the Treaty. The United States will pursue multilateralizing the Treaty and demarcation in parallel, and will not agree to the former until agreement on the latter is secured.

Figure 2 illustrates the Administration's proposal. It shows the range of peak velocities of what the Congress and the Administration refer to as modern TBMs and SBMs (i.e, those missiles remaining in a START force structure). The figure shows that a clear gap exists between theater and strategic ballistic missiles and the proposed demarcation. Supporters of the Administration's proposed ABM Treaty changes point out that this gap is sufficiently wide to ensure that the proposed demarcation will not impinge on the Treaty's ability to limit strategic BMD systems.

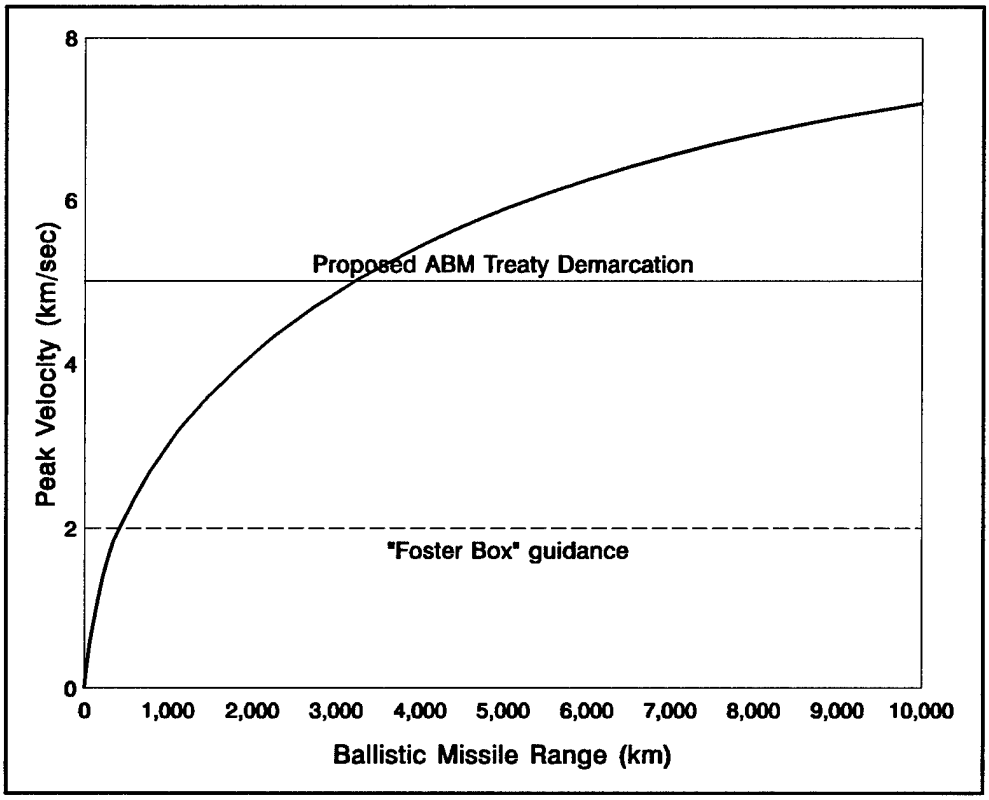
Figure 2
Guidance on ABM Treaty
Modern Theater and Strategic Ballistic Missiles



The following graph illustrates the Administration's ABM Treaty proposal in a different way. Figure 3 plots a missile's peak velocity as a function of its range.[13] Note that the peak velocity increases as the range of the missile increases. The graph shows that the 5 kilometer per second demarcation corresponds roughly to a 3,200 kilometer range ballistic missile. As a line for comparison, previous Pentagon guidance establishing a 2 kilometer per second threshold for permitted non-ABM testing and deployment, known as the Foster Box, is noted (see footnote 2).

[13] These calculations were graciously provided by Dr. Peter Zimmerman, a physicist and defense specialist at the Center for Strategic and International Studies.

Figure 3
Ballistic Missile Peak Velocities
and Proposed ABM Treaty Changes



BALLISTIC MISSILE PROLIFERATION

What threats are captured by TMD systems capable of intercepting 5 kilometer per second ballistic missiles? The Executive Branch and many others have long argued that numerous countries possess or are building weapons of mass destruction, as well as ballistic missiles that could deliver these weapons.[14] Figure 4 shows some of the types of TBMs deployed throughout the developing world that could be destroyed if advanced U.S. TMD systems perform as envisioned. For example, the list includes the PRC-built CSS-2, which precipitated much of the recent concern for setting the demarcation at 5 kilometers per second. Other PRC nuclear missiles are dealt with in a later section.

The list also includes the North Korean No Dong 1, which will reportedly enter full-scale production later in 1994, as well as the longer range No Dong 2 under development. Although it is too early to assess the likely ranges of similar North Korean ballistic missiles reported under development, these missiles are likely to fall under the proposed TMD demarcation. There is also

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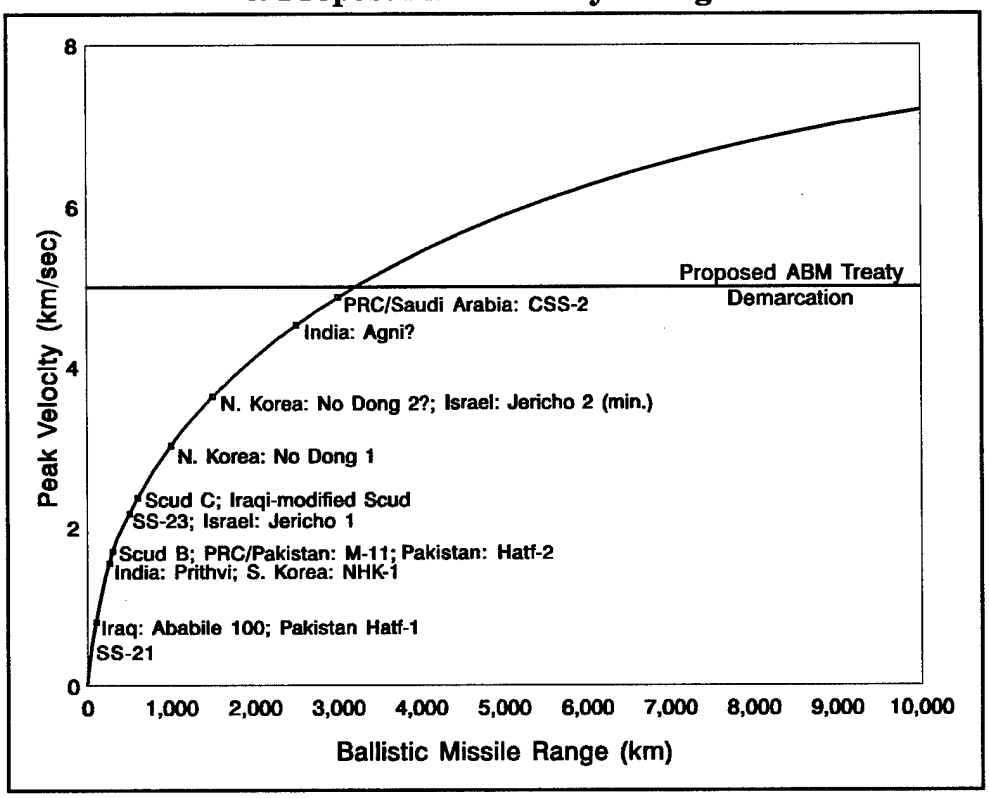
[14] For example, see U.S. Department of Defense. SDI Organization. Ballistic Missile Proliferation: An Emerging Threat. 1992. Washington. DC.

the Indian Agni missile under development. A number of other shorter range TBMs such as Scuds, as well as Pakistani and Israeli Jericho missiles, fall well under the proposed demarcation. Many countries hostile or unfriendly to U.S. interests possess these missiles.

Figure 4
Third World Ballistic Missiles
& Proposed ABM Treaty Changes



It is important to examine a little more closely how many such missiles there are and who has them in the developing world. Although it is not possible to get an accurate accounting of the total number of TBMs throughout the world from public and unclassified sources,[15] currently there appear to be about 1,400 to 2,000 such missiles (excluding NATO, Russia, and Japan). Almost all of these missiles are shorter range, having a range of less than 900 kilometers. About 9%-14% can travel between 900 and 3,000 kilometers. The distribution of these TBMs as a function of their range can be seen in Figure 4.

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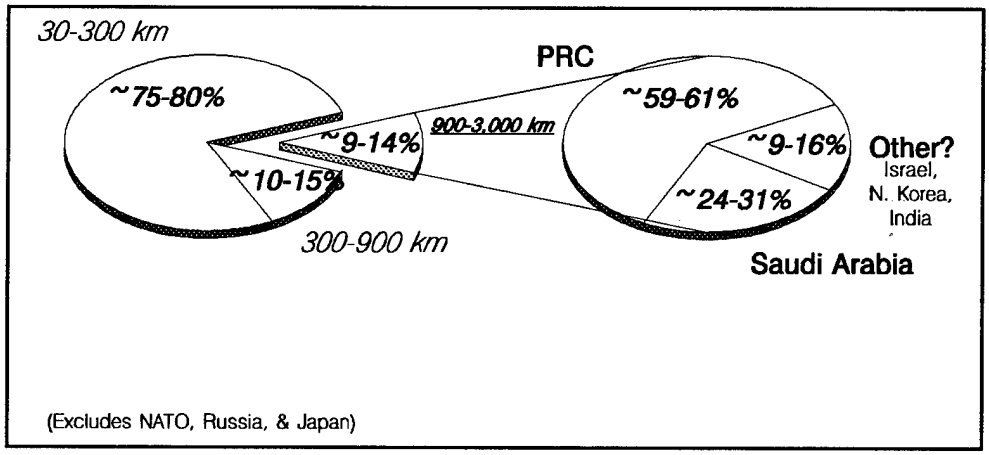
[15] Some unclassified numbers were obtained from the Defense Intelligence Agency, Office of Legislative Liaison, February 1994. Public sources of information included: The Military Balance, 1992-1993. International Institute for Strategic Studies. 1993. London; and The Nonproliferation Review. Monterey Institute of International Studies. Fall 1993 (Vol. 1, No. 1). Monterey, CA.

It is also useful to look more closely at the countries that may possess these longer range TBMs. Figure 5 shows that almost all these missiles can be found in China and Saudi Arabia; most of those remaining may be deployed in Israel, with a very few perhaps in North Korea and India.

Figure 5
Estimated Global Tactical/Theater Ballistic Missiles



There is little doubt that these numbers will change over the next few years and beyond. But their distribution illustrates two important points that probably hold up even with accurate classified numbers. First, almost all of these missiles are shorter range TBMs, which could be engaged by the PAC-3 system under development. Second, almost all of the longer range TBMs are in the hands of countries not hostile to the United States. These points suggest that it would be very useful to have a similar, classified assessment of missile proliferation covering 3-5 years from now so as to provide important data in considering early procurement of advanced TMD systems.[16] It would then be useful to have a similar assessment covering the period ten years from now so as to assist decisionmakers in their long-term planning for advanced TMD development and procurement. Such assessments should not be generalized, but rather should include not only numerical estimates, but projections of countries likely to threaten U.S. interests directly (e.g., threats of direct missile attacks on U.S. overseas bases or forces) and indirectly (e.g., threats of missile attacks on U.S. allies and friends, and exports of TBMs to countries hostile to U.S. interests).

REACTIONS TO THE ADMINISTRATION'S PROPOSAL

Although the Administration's proposed changes have evoked mostly praise, mixed with some criticism, the issue has not stirred broad public or congressional interest to date. Neither has there been much reaction overseas.

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[16] In FY 1996, the Pentagon plans to buy a User Operational Evaluation System (UOES), or THAAD battery consisting of 40 interceptors and associated radars for contingency use.

Some of the criticism that has been levelled at the proposed changes focusses on the potential capabilities of advanced TMD systems to intercept strategic ballistic missiles. Although some analysts characterize this capability as significant,[17] the Administration and others argue that this capability is theoretical and militarily insignificant.[18]

One way to understand this argument better is to consider the experience gained from the Patriot PAC-2 tactical missile defense system. PAC-2 was designed to intercept targets with ranges of about 300 kilometers, or whose peak ballistic velocities approached 1.7 kilometers/ second. During Desert Storm, the PAC-2 system engaged Iraqi-modified Scuds with ranges of about 600 kilometers, or whose peak velocities reached close to 2.7 kilometers/second. Although the range of the target doubled, more importantly it represented about a 40 percent increase in peak ballistic velocity compared to the targets PAC-2 was demonstrated against before Desert Storm. Despite the considerable increase in target speed, the Patriot system was effective, according to the Pentagon, whose final assessment is "that over 40 percent of the engagements in Israel and over 70 percent of the engagements in Saudi Arabia were successful."[19] Critics of Patriot in Desert Storm put its effectiveness against Iraqi Scuds closer to zero.

From discussions with senior missile defense engineers in industry,[20] one can fairly make some comparisons and apply them to prospective advanced TMD systems. Figure 6 illustrates the declining capability of the PAC-2 beyond its design specifications and test performance. Although there is not unanimity on how quickly this capability degrades to zero, what's important is to note that demonstrated missile defense capabilities do not degrade catastrophically immediately beyond an upper-test limit. Instead, those capabilities degrade gracefully. In other words, if, for example, TMD capability against 5 kilometers per second missiles is 95%, then capability does not fall to zero against 5.1 kilometers per second missiles.

The Administration and others point out that any ABM capabilities of advanced TMD systems are militarily insignificant. They argue that in a real war, especially with strategic nuclear missiles, an attacker will overwhelm the

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[17] See Lisbeth Gronlund, George Lewis, Theodore Postol, and David Wright. Highly Capable Theater Missile Defense and the ABM Treaty. Arms Control Today. April 1994, pp. 3-7.

[18] Interviews with Pentagon and National Security Council staff. December 1993.

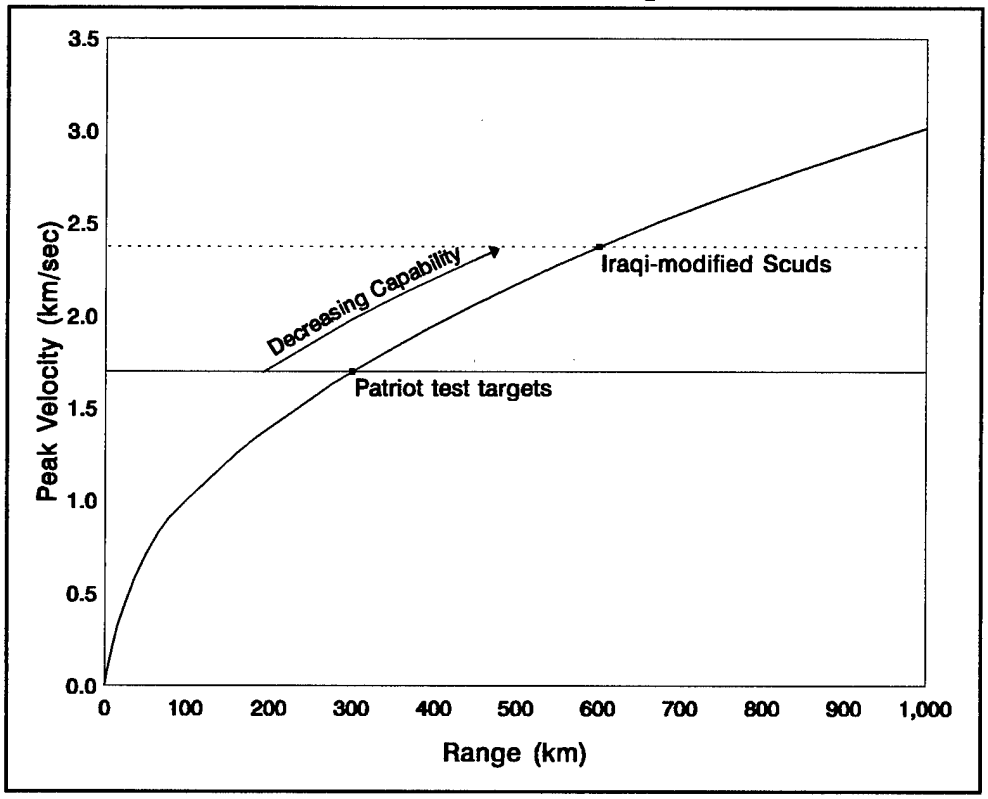
[19] See, "Statement by Major General Jay M. Garner on Patriot Performance in Desert Storm," in U.S. Congress. House. Committee on Government Operations. Subcommittee on Legislation and National Security. Performance of the Patriot Missile in the Gulf War. Hearings, 102nd Congress, 2nd Session. April 7, 1992. Washington, G.P.O., 1993. p. 228.

[20] Telephone conversations. December 1993 - January 1994.

TMD systems of an adversary (e.g., a hypothetical U.S.-Russian strategic nuclear exchange). This may be true, but in the context of the ABM Treaty, it is largely irrelevant. The ABM Treaty does not include any provision that addressees military capability or significance. Instead, the Treaty states that the parties will not give any interceptors or components "capabilities to counter strategic ballistic missiles or their elements in flight trajectory" (Article VI).

The problem is that the Treaty limits TMDs if they have any capability, not just a significant or military capability, to counter strategic ballistic missiles. If the Administration prevails and changes Article 2 to read "demonstrated capabilities," then part of this particular issue may be resolved. Only TMD systems actually tested through verifiable means at or below the demarcation would not be considered ABM systems. But what happens if a permitted U.S. TMD system is deployed in a future crisis and engages targets faster than 5 kilometers per second? Would all such U.S. TMD systems then be considered ABM systems and made illegal under the terms of the Treaty? What happens, for example, if the United States exports to Japan, or if Russia exports to Libya, an advanced TMD system that is then tested by those countries against a target travelling faster than 5 kilometers per second? What becomes of such systems in the United States or Russia? Do the proposed ABM Treaty changes address these issues?

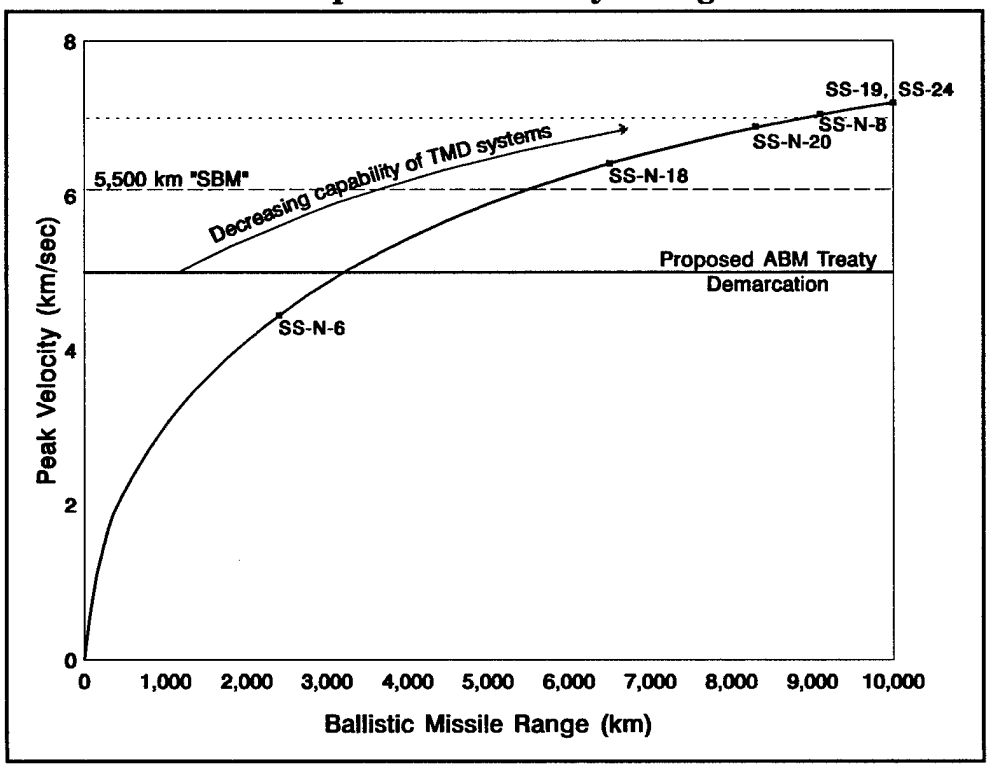
Figure 6
Patriot PAC-2
Tested and Demonstrated Capabilities



If advanced TMD systems possess some inherent ABM capability against targets faster than 5 kilometers per second, then one can see in Figure 7 why some have expressed concern over the proposed ABM Treaty changes. This graph shows that if you apply the PAC-2 lesson to the proposed TMD threshold, then there is a capability to destroy some Russian strategic ballistic missiles. This capability may range, for example, from .0001 percent to 20 or 50 percent or more, but the point is that there is some capability against ballistic missiles whose peak velocities exceed the 5 kilometers per second demarcation.

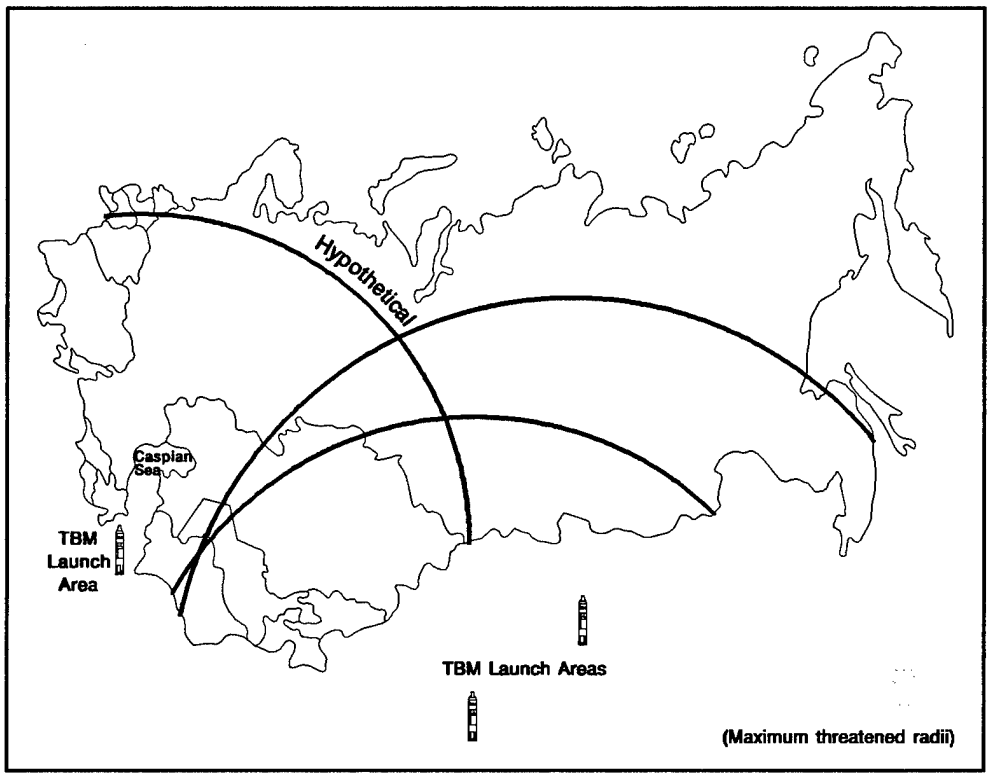
Although the Administration largely discounts domestic criticism of its ABM Treaty demarcation, the Russians apparently consider this particular issue relevant. In Geneva, the Russians raised a number of concerns that dealt with the potential ABM capabilities of advanced TMD systems. These concerns apparently include interest in obtaining additional technical constraints (e.g., establishing maximum interceptor speeds and maximum altitude intercepts), as well as other arms control measures (e.g., provisions that ensure a treaty party will not deploy widespread TMD systems in the absence of clear TBM threats), in establishing a formal understanding of the distinctions between permitted TMD systems and restricted ABM systems.

Figure 7
Russian Strategic Ballistic Missiles
& Proposed ABM Treaty Changes



But, one might ask why the Russians would be at all interested in pursuing changes to the Treaty that could degrade the capability of some of their strategic missile systems? Part of the answer is that, unlike the United States, Russia faces immediate and prospective TBM threats from regional neighbors, specifically from China, and elsewhere from its south. Figure 8 shows that much of Russia could be threatened with 3,000 kilometer TBM threats. Such an area might include about 80%-90% of Russian urban and industrial centers and about 50%-70% of Russian military assets. It would appear that Russia's primary interest in the proposed Treaty demarcation would be to pursue its own national security interests. Of course, Russia might conclude that TMD systems are of doubtful utility, too expensive to develop and maintain, and would only fuel an arms race; therefore, such systems should be constrained and deterrence strengthened.

Figure 8
Potential 3,000 km TBM Threats to Russia



POTENTIAL IMPLICATIONS

The Administration's proposed changes to the ABM Treaty suggest a number of potential implications. Some of these might affect long-standing congressional support for TMD and the role of the Congress in arms control decisionmaking. Other implications may affect U.S. international security and arms control interests. These are discussed below.

CONGRESSIONAL INTEREST IN ADVANCED TMD

For many years, Congress has been the principal advocate for and supporter of developing effective TMD systems. Congress believes such defenses are militarily necessary to protect U.S. and allied coalition forces overseas against possible tactical ballistic attacks. Congress supported upgrading the Patriot air-defense system to give it a limited TMD capability long before the Patriot PAC-2 systems were needed in Desert Storm. Congress has long supported longer term TMD technology development in the hope that such capabilities could aid in the defense of U.S. projection forces overseas.

But, within the past year or two, as TMD budgets increased dramatically, Congress has begun to scrutinize the profusion of military service TMD programs and the rationale for wider area defenses. Many in Congress believe that wide-area defenses are principally necessary to the security interests of U.S. allies and friends, and not directly necessary to the national security interests of the United States. Many are beginning to believe that if this is the case, then the United States might want to reconsider its support of such programs, and, instead, turn to U.S. allies and friends for financial and perhaps technological cooperation. Some Members ask, for example: Why should the United States subsidize the TMD security requirements of friends and allies at taxpayer expense, while not funding a national missile defense of the continental United States? Why are U.S. friends and allies not more concerned about missile threats to their own countries and not willing to make their own resource commitment to develop TMD systems?

Although this debate is only beginning, it is likely that as it widens (and if perceptions of the threat do not change and allies do not unequivocally support the U.S. TMD effort), advanced TMD programs might be cut significantly by Congress. Within the next few years, therefore, the advanced U.S. TMD effort could become a basic research and development effort with an indefinite deployment schedule.

CONGRESSIONAL PREROGATIVES IN ARMS CONTROL

Congress views itself as a coequal partner with the Executive Branch in foreign and defense policymaking. Congress therefore places great importance on being kept abreast of Executive Branch goals, plans, and negotiations for arms control. The current proposal to change the ABM Treaty was criticized by some in Congress for the lack of prior, widespread congressional consultation on issues that affect a major treaty with strong congressional support.

There is a growing awareness that the proposed ABM Treaty changes might produce a new arms control regime, one that places limits on TMD systems within the context of the ABM Treaty. Senator Richard Lugar stated that if the proposed changes restrict U.S. defense programs, or could tend to have that effect, they "must be judged to be substantive modifications, and must be

submitted to the Senate for its advice and consent."[21] Other Members of the Senate Foreign Relations Committee, including Chairman Claiborne Pell, have taken the same position. Other Members have not yet taken a public position on whether the Senate should play a formal role in establishing a demarcation in the ABM Treaty or creating a new TMD arms control regime within the Treaty.

How a negotiated agreement between the United States, Russia, and other former Soviet partners gets formally resolved may turn on U.S. congressional-executive relations. The Administration will have to convince many in Congress that the proposed changes will not subvert the central purposes of the ABM Treaty and at the same time will not impinge on U.S. options to develop and deploy advanced TMD systems. Decisionmakers will also have to determine whether a formal legislative review of the Treaty here and abroad by the Treaty partners is the appropriate course of action.

OTHER NUCLEAR POWERS

Figure 9 shows the peak velocities of the ballistic missile forces of the non-U.S.-Russian nuclear countries. It shows that advanced TMD systems could have some capability to intercept almost all the nuclear forces of these other countries. This section looks briefly at some of the ways in which these other nuclear powers might think of, or respond to, the possibility that advanced TMD systems might be deployed by another regional power or adversary.

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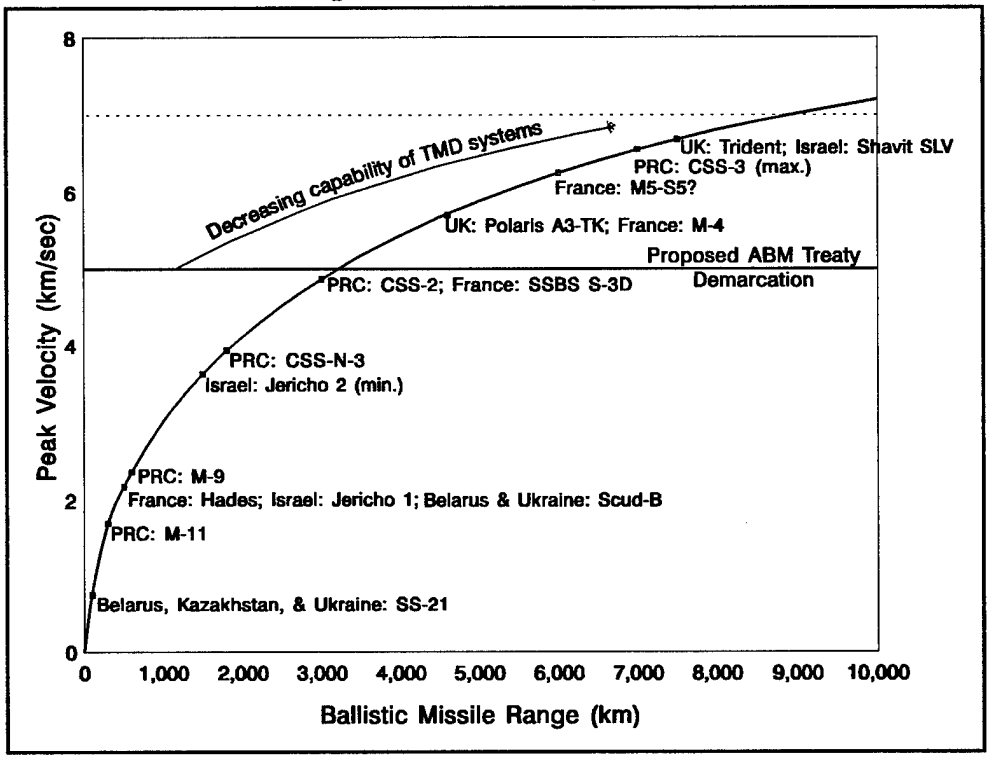
[21] Sen. Richard G. Lugar. Opening Statement. Hearing on Administration Proposal to Seek Modification of the 1972 ABM Treaty. Senate Foreign Relations Committee. March 10, 1994.

Figure 9
Ballistic Missiles of Other Nuclear Countries
& Proposed ABM Treaty Changes



Nuclear Modernization Efforts & Nuclear Testing

The ABM Treaty proposal introduces a new, unplanned variable into the nuclear security calculations of Britain, France, China, and Israel. The affect on their decisions cannot now be predicted with any certainty. By permitting unrestricted missile defense capabilities against roughly 3,200 kilometer missiles, TMD systems could be deployed so as to jeopardize the effectiveness of virtually all of the ballistic missile nuclear forces of Britain, France, China, and perhaps Israel, India, Pakistan, and North Korea. Reactions to this turn of events could manifest themselves in several ways, if these nations so choose.

First, some or all of these nations might conclude that they can no longer be assured of being able to threaten or destroy the range of targets they plan for with the same level of confidence, and therefore, require a larger number of nuclear-armed ballistic missiles. They could decide to increase significantly the size of their force. These countries may decide for financial or other reasons that they cannot or will not proliferate numerically, but the effect of the U.S. proposal is to present these countries with a new factor to consider.

Second, if some or all of these nations decide that they can no longer be assured of being able to threaten or destroy the range of targets they plan for at the confidence level they want, they might decide that qualitative nuclear

force modernization is necessary. Such improvements might include, for example, deploying multiple warheads on their missiles and penetration aids to get through prospective missile defenses. Again, these nations might decide they cannot afford to undertake such improvements, but that is something that cannot now be predicted with any certainty.

Furthermore, as these nations consider their future nuclear security environment, they might decide that they cannot make a long-term commitment to a complete ban on nuclear testing. Continued nuclear testing would be necessary if a nation decides that it required new warhead designs, possibly in response to prospective missile defense deployments that devalued its nuclear ballistic missile force.

Supporters of the proposed ABM Treaty changes argue that Russia could not afford widespread advanced TMD systems such that they would cause concern among other nuclear powers and neighbors. But, the ABM Treaty is of unlimited duration, and what Russia may be able to do or choose to do 5 or 10 or 20 years from now cannot be known with certainty. The point is that potential adversaries may well have to consider a future wherein a revitalized Russia deploys widespread, effective TMD systems.

Perceptions of Nuclear Deterrence

A principal reason a nation acquires a nuclear weapons capability is to deter potential adversaries from taking a range of direct hostile actions, principally military attack. In the late 1960s and early 1970s, the United States and Soviet Union codified in arms control the belief that unconstrained offensive nuclear weapons forces *and* ballistic missile defenses was dangerous. Given the fact that both sides then possessed large numbers of strategic nuclear weapons, a major fear was that without severe limits on missile defenses, superpower crises could quickly escalate into a global nuclear conflagration.[22]

A nuclear-armed nation in a region, such as Asia or the Middle East, might similarly fear a future that includes unconstrained offensive nuclear missiles and missile defenses. Many, if not most, of the arguments that have applied to nuclear deterrence, stability, and defenses between the superpowers, probably apply to nuclear-armed regional antagonists. Although a lot of questions can be raised regarding this issue, it is not clear that the Administration has answers for them.

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[22] Both sides apparently feared that in a crisis there would be enormous pressure to launch a nuclear attack first in order to destroy much of the other nation's offensive nuclear and defensive forces. This would then, arguably, enable one's own defenses to destroy as much of the residual, retaliatory attack as possible.

Regional Balances of Power

These points raise serious questions about the future of regional powers and regional balances of power. Could the introduction of advanced missile defense systems into any of several regions affect those regions in ways that adversely affect U.S. international interests? Advocates of the Treaty demarcation assert that widespread TMD deployments would build regional stability and serve as confidence-building measures. But, could the introduction of such systems by one of the ABM Treaty parties adversely affect U.S. international security interests where there is already widespread missile proliferation? For example, would a future Russian sale of advanced TMD systems to Syria or Libya contribute to stabilizing the Middle East or Europe? Would U.S. sales of advanced TMD systems to Japan, Ukraine, China,[23] or Israel contribute to regional stability in Asia, Eurasia, or the Middle East, or would they initiate new arms competition?

Because the ABM Treaty only applies to the relevant parties, many would argue that advanced TMD systems would not adversely affect the relationships among the partners. This does not appear to be in dispute, especially if the proposed changes are mutually agreed-upon. But, the world has changed and the implications of prospective exports of advanced TMD systems throughout the world has not been fully assessed or been debated publicly. It could well be that the unconstrained deployments of theater missile defenses as one response to widespread theater missile proliferation is a noble endeavor for the international community, but that has not been fully debated or considered.

U.S. ARMS CONTROL OBJECTIVES

Currently, there is a consensus in the Congress and the Executive Branch to pursue several arms control objectives: 1) a continued moratorium on nuclear testing and negotiation of a Comprehensive Test Ban (CTB); 2) continued opposition to further nuclear proliferation and a reversal of nuclear proliferation in several countries; 3) implementation of the START I and II agreements; and 4) continued, deep reductions in the nuclear arsenals of the United States and former Soviet Union. The proposed ABM Treaty changes regarding TMD raise a number of questions, many of which do not presently have answers. The proposed changes also may adversely affect U.S. arms control objectives. These questions and effects are now discussed.

Moratoria on Nuclear Tests and CTB Negotiations

Currently, the United States, Britain, France, and the former Soviet Union have temporarily (and informally) halted all nuclear weapons testing. This cessation is the result of parallel unilateral moratoria, rather than by formal

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[23] For a treatment of these and related issues, see, U.S. Library of Congress. Congressional Research Service. Theater Missile Defense: Possible Chinese Reaction; U.S. Implications and Options, by Robert G. Sutter. CRS Report 94-154S. February 23, 1994.

treaty.[24] China has not declared a moratorium of its own; it conducted a nuclear test in October 1993. Negotiations on a CTB are underway, and for the first time, many analysts are optimistic about the outcome.

As mentioned above, the prospective deployment of future, advanced TMD systems in countries such as Russia, introduces an unexpected factor in the nuclear modernization plans of countries such as France and China. If these two countries in particular were to decide that they have to retain the right to test new nuclear warhead designs as part of an effort to counter potential future TMD systems--the development of which is not impeded by treaties--then the likelihood of continuing the current moratorium or negotiating a CTB would be greatly diminished. Indeed, one French official suggested that the prospect of widespread advanced TMD deployments would lead to an end of the French moratorium by providing political support to those who favor renewed French testing.[25]

Nuclear Non-Proliferation

1995 NPT Extension

The 24-year-old Non-Proliferation Treaty (NPT) is up for formal review in 1995. At that time, the parties may decide it is no longer in their national interests to adhere to the Treaty, or they may decide to modify it and extend their commitment to it for another period of time or indefinitely. The U.S. goal is to make the Treaty of unlimited duration and to obtain this extension by the widest possible margin.

A long-standing challenge to the NPT results from perceptions of inequality; the nations that have nuclear weapons do not get rid of their weapons, and the nations that do not have nuclear weapons are banned from acquiring such weapons. A large component of this perceived inequality is that the nuclear powers have conducted many nuclear tests. Agreement to a CTB by 1995, or at least clear progress toward one, is viewed by many observers as the *sine qua non* for extending the NPT indefinitely by a wide margin. If some of the nuclear-armed nations determine that they cannot support a ban on nuclear testing, or that they must continue to build their forces numerically, or both, in order to counter prospective advanced TMD systems, it will add to the challenge of extending the NPT. On the other hand, will the possibility of widespread TMD deployments deter potential nuclear weapon states from pursuing nuclear weapons programs, especially those aimed at developing nuclear warheads for deployment on ballistic missiles?

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[24] The United Kingdom conducts all its nuclear tests in the United States at the Nevada Test Site. The U.S. moratorium therefore precludes UK testing.

[25] Interview. December 1993.

Global Ban on Fissile Material Production

Similarly, the United States seeks a ban on the production of fissile material. Might withdrawal of critical nations' support for a ban on nuclear testing or the NPT Extension work against the U.S. objective to negotiate a global ban on nuclear materials?

START Implementation

Implementing the START treaties became seriously complicated with the breakup of the Soviet Union, especially with Ukraine demanding various concessions from Russia and the United States.[26] Currently, significant progress toward implementation is being made. Although Ukraine states it wants to be party to the ABM Treaty, as Ukraine considers some of the implications of prospective, advanced TMD deployments in Russia, could Ukraine reconsider its commitment to remove strategic nuclear weapons from its soil? As an ABM Treaty party, could Ukrainian parliamentarians demand further START-related concessions or parity under the ABM Treaty, namely the right to deploy also an ABM site in Ukraine? Might this possibility then further complicate the implementation of START, especially with Russia?

Continued Deep Reductions in Strategic Nuclear Weapons

Although the START treaties are not yet implemented, many expect that once those treaties enter into force, additional arms control agreements will be pursued to cut U.S. and former Soviet strategic nuclear forces even further and those agreements may include British, French, and Chinese nuclear forces. On the other hand, if any of these countries determines that nuclear force proliferation is required for its national security in light of prospective, advanced TMD deployments, chances for deep cuts beyond START II could be diminished.

CONCLUSION

Today, there seems to be unanimity in the policy community that something must be done to prevent or reverse the global proliferation of weapons of mass destruction and their means of delivery. Differences occur over the appropriate means, with some advocating primarily diplomatic, economic, or arms control solutions, and others emphasizing the primacy of military options. Most agree, however, that some combination of options is necessary.

The proposal to establish a formal understanding with Russia and other former Soviet states on the distinction between theater and strategic ballistic missile defenses in the ABM Treaty goes to the heart of this debate. Many advocates of this proposal believe that the ABM Treaty remains vital to U.S. national security and that Treaty changes must be made to counter, militarily,

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[26] See, U.S. Library of Congress. Congressional Research Service. Arms Control After START. CRS Issue Brief, 91-148, by Steven A. Hildreth and Amy Woolf, updated regularly.

real and looming threats from ballistic missiles to U.S. national security interests. Others believe the proposed changes could put the central purpose of the ABM Treaty and perhaps other U.S. arms control objectives at risk. Many are also skeptical that these threats will materialize or will threaten the United States or U.S. military forces based overseas. All seem to agree, however, that the outcome of the current debate will shape the future of U.S. TMD programs and the ABM Treaty, and hence, U.S. national security interests.